

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A process for hydrocyanation of at least one substrate selected from the group consisting of 2-pentenenitrile, 3-pentenenitrile, 4-pentenenitrile, and 2-methyl-3-butenenitrile comprising contacting the substrate with hydrogen cyanide in the presence of a zero-valent nickel hydrocyanation catalyst and a promoter, wherein said promoter is a byproduct of a method for producing titanium tetrachloride from titanium ore, said method comprising the steps of contacting a titanium-containing ore with chlorine under reducing conditions to obtain a gaseous reaction product, recovering titanium tetrachloride from the reaction product, thereby leaving behind a residue, and condensing the residue to obtain said byproduct, and wherein said byproduct comprises ~~at least one compound selected from the group consisting of~~ iron (II) chloride and manganese (II) chloride.

2. (Previously Presented) A process comprising:
a) chlorinating a titanium-containing material to produce material comprising titanium tetrachloride and other iron-based chlorides;
b) separating the titanium tetrachloride;
c) obtaining a byproduct material comprising iron-based chlorides;
d) using the byproduct material as a promoter in a process for hydrocyanation, said hydrocyanation process comprising contacting at least one substrate selected from the group consisting of 2-pentenenitrile, 3-pentenenitrile, 4-pentenenitrile, and 2-methyl-3-butenenitrile with hydrogen cyanide in the presence of a zero-valent nickel hydrocyanation catalyst and the promoter.

3. (Previously Presented). The process of claim 2, wherein the substrate is 2-pentenenitrile.

4. (Previously Presented) The process of claim 2, wherein the substrate is 3-pentenenitrile.

5. (Previously Presented) The process of claim 2, wherein the substrate is 4-pentenenitrile.

6. (Previously Presented) The process of claim 2, wherein the substrate is 2-methyl-3-butenenitrile.

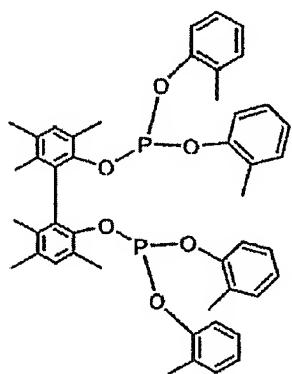
7. (Previously Presented) The process of claim 2, wherein the byproduct material comprises iron(II) chloride and manganese(II) chloride.

8. (Previously Presented) The process of claim 2, wherein chlorinating a titanium-containing material is performed in a fluidized bed reactor.

9. (Previously Presented) The process of claim 2, wherein the byproduct material is used in a process for hydrocyanation without prior purification or separation.

10. (Previously Presented) The process of claim 2, wherein the nickel hydrocyanation catalyst comprises a bidentate phosphite ligand.

11. (Previously Presented) The process of claim 1, wherein the nickel hydrocyanation catalyst comprises the bidentate phosphite ligand having the formula



12. (Previously Presented) A process comprising:
reacting 2-methyl-3-butenenitrile with hydrogen cyanide to produce 2-methylglutaronitrile in
the presence of a zero-valent nickel catalyst and a promoter obtain as a byproduct from a
titanium ore chlorination process.

13. (Previously Presented) A process comprising:
reacting a mixture of pentenenitriles with hydrogen cyanide to produce both adiponitrile and
2-methylglutaronitrile in the presence of a zero-valent nickel catalyst and a promoter obtained
as a byproduct from a titanium ore chlorination process.